WHAT IS CLAIMED IS:

1.   A method of encoding a digital signal and its blocks of digital samples for transmission over a packet switched network, the method including steps of:

    quantizing the binary representations of the digital samples to more coarsely representations of the digital samples;

    generating prediction samples as fixed point or floating point representations based on previous, quantized digital samples of said quantizing step; and

    lossless encoding the quantized digital samples conditioned on the fixed point or floating point representations of the generated prediction samples.

2.   The method of encoding the digital signal and its blocks of digital samples for transmission over the packet switched network as recited in claim 1, wherein the lossless encoding of the quantized digital samples is based on table look-ups.

3.   The method of encoding the digital signal and its blocks of digital samples for transmission over the packet switched network as recited in claim 2, wherein table look-ups are performed with a quantized digital sample for generating two quantization region boundary levels corresponding to the quantized digital sample, wherein the levels with the common generated prediction value and another table are mapped onto a pair of likelihood values that are used for lossless encoding the quantized digital sample.

4.   The method of encoding the digital signal and its blocks of digital samples for transmission over the packet switched network as recited in claim 1, wherein said lossless encoding step for a specific quantized digital sample comprises outputting a specific code word which corresponds to a specific entry of a table with code words, said specific entry being derived with the generated prediction sample corresponding to said specific quantized digital sample.

5.   The method of encoding the digital signal and its blocks of digital samples for transmission over the packet switched network as recited in claim 4, wherein:

    said table with code words is chosen among several tables with code words based upon said generated prediction sample, and

    said specific entry is derived as the entry corresponding to said quantization index of said quantized digital sample.

1   6.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 1, wherein

3 said step of generating prediction samples is preceded by de-quantization of the quantized

4 digital samples, thereby obtaining the quantization values of said quantized digital

5 samples.

1   7.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 1, further

3 comprising a step of quantizing the generated prediction samples, wherein said lossless

4 encoding step is based on generated prediction samples having quantization levels of a

5 predefined set of quantization levels.

1   8.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 1, further

3 comprising a step of setting a state of a predictor generating said prediction samples to

4 zero before starting to encode one of said blocks with digital samples.

1   9.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 8, wherein

3 said lossless encoding step is conditioned on the quantization indices of said generated

4 prediction samples.

1   10.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 1, wherein

3 said encoding is performed by a multiple description encoder, which multiple description

4 encoder encodes each block of said blocks of digital samples with multiple block

5 descriptions by performing the steps of the encoding method individually for each

6 generated block description.

1   11.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 10, further

3 comprising a step of transmitting, for each block of said blocks of digital samples, at least

4 two different block descriptions in respective data packets with a predefined time interval

5 between the packets.

1   12.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 11, further

3 comprising a step of grouping a respective block description of at least two different

4 blocks of digital samples together for transmission in one and the same data packet.

1   13.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 10,

3 wherein said digital signal is a digitized sound signal and said blocks of digital samples

4 are sound segments, and wherein the encoding method in said multiple description

5 encoder includes an initial step of transcoding an n-bit PCM represented digitized sound

6 signal to at least two representations represented by fewer than n bits each and with

7 respective sets of quantization levels for the segment descriptions of the sound segments

8 of said digitized sound signal.

1   14.   The method of encoding the digital signal and its blocks of digital

2 samples for transmission over the packet switched network as recited in claim 1, wherein

3 said digital signal is a digitized sound signal and said blocks of digital samples are sound

4 segments.

1   15.   A method of decoding a digital signal and its blocks of digital

2 samples received from a packet switched network, the method comprising steps of:

3   generating prediction samples as fixed point or floating point

4 representations based on previous, quantized digital samples of said digital signal

5 resulting from a lossless decoding of received code words;

6   lossless decoding received code words conditioned on the fixed point or

7 floating point representations of the generated prediction samples; and

8   de-quantizing quantized digital samples resulting from the lossless

9 decoding step into binary representations of the digital samples of said digital signal.

1   16.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 15, wherein the

3 lossless decoding of the received code words are based on table look-ups.

1   17.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 16, wherein the

3 received code words represents likelihood values, wherein two likelihood values with a

4 generated prediction value and a table are mapped onto two quantization region boundary

5 levels of a corresponding quantized digital sample, said levels being used to derive the

6 corresponding quantized digital sample by performing table look-ups.

1   18.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 15, wherein said

3 lossless decoding step for a specific quantized digital sample comprises a step of

4 outputting a specific quantization level which corresponds to a specific entry of a table

5 with quantization levels, said specific entry being selected with a received code word

6 corresponding to said specific quantized digital sample.

1   19.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 18, wherein said

3 table with quantization levels is chosen among several tables with quantization levels

4 based upon a generated prediction sample corresponding to said specific quantized digital

5 sample.

1   20.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 15, wherein said

3 step of generating prediction samples is preceded by de-quantization of the quantized

4 digital samples resulting from the lossless decoding step, thereby obtaining the

5 quantization values of said quantized digital samples.

1   21.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 15, further

3 comprising a step of quantizing the generated prediction samples, wherein said lossless

4 decoding step is based on generated prediction samples having quantization levels of a

5 predefined set of quantization levels

1   22.   The method of decoding the digital signal and its blocks of digital

2 samples received from the packet switched network as recited in claim 21, wherein said

3 lossless decoding step is conditioned on the quantization indices of said generated

4 prediction samples.

1   23.   The method of decoding the digital signal and its blocks of digital
2   samples received from the packet switched network as recited in claim 15, further
3   comprising a step of setting a state of a predictor generating said prediction samples to
4   zero before starting to decode one of said blocks with digital samples.

1   24.   The method of decoding the digital signal and its blocks of digital
2   samples received from the packet switched network as recited in claim 15, wherein said
3   decoding is performed by a multiple description decoder, which multiple description
4   decoder decodes each block of said blocks of digital samples based on at least two
5   different received block descriptions by performing the steps of the decoding method
6   preceding the de-quantizing step individually for each received block description.

1   25.   The method of decoding the digital signal and its blocks of digital
2   samples received from the packet switched network as recited in claim 15, comprising the
3   steps of:
4   waiting a predefined time period for reception of at least two different
5   packets including different block descriptions of one and the same block of digital
6   samples;
7   performing the steps of the decoding method preceding the de-quantizing
8   step with respect to those, one or several, different block descriptions of said block of
9   digital samples received within said predefined time period; and
10   de-quantizing the one, or a merger of the several, block descriptions.

1   26.   The method of decoding the digital signal and its blocks of digital
2   samples received from the packet switched network as recited in claim 25, wherein each
3   received packet comprises several block descriptions of several different blocks of digital
4   samples grouped together, the method comprising a step of dividing successively received
5   packets with respect to the included block descriptions, thereby obtaining several
6   different block descriptions for each block of digital samples to be decoded.

1   27.   The method of decoding the digital signal and its blocks of digital
2   samples received from the packet switched network as recited in claim 25, wherein said
3   digital signal is a digitized sound signal and said blocks of digital samples are sound
4   segments, and wherein said digitized sound signal is a PCM encoded bitstream, and
5   wherein any merger of said de-quantizing step involves transcoding at least two segment

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6   representations, each represented by fewer than n bits, to a single n-bit PCM

7   representation of said one and the same sound signal segment.

1   28.   The method of decoding the digital signal and its blocks of digital

2   samples received from the packet switched network as recited in claim 15, wherein said

3   digital signal is a digitized sound signal and said blocks of digital samples are sound

4   segments.

1   29.   A computer readable medium having computer executable

2   instructions for causing a digital signal and its blocks of digital samples to be encoded for

3   transmission over a packet switched network, the computer executable instructions

4   performing steps of:

5   quantizing the binary representations of the digital samples to more

6   coarsely representations of the digital samples;

7   generating prediction samples as fixed point or floating point

8   representations based on previous, quantized digital samples of said quantizing step; and

9   lossless encoding the quantized digital samples conditioned on the fixed

10 point or floating point representations of the generated prediction samples.

1   30.   A computer readable medium having computer executable

2   instructions for causing a digital signal and its blocks of digital samples received from a

3   packet switched network to be decoded, the computer executable instructions performing

4   steps of:

5   generating prediction samples as fixed point or floating point

6   representations based on previous, quantized digital samples of said digital signal

7   resulting from a lossless decoding of received code words;

8   lossless decoding received code words conditioned on the fixed point or

9   floating point representations of the generated prediction samples; and

10   de-quantizing quantized digital samples resulting from the lossless

11 decoding step into binary representations of the digital samples of said digital signal.